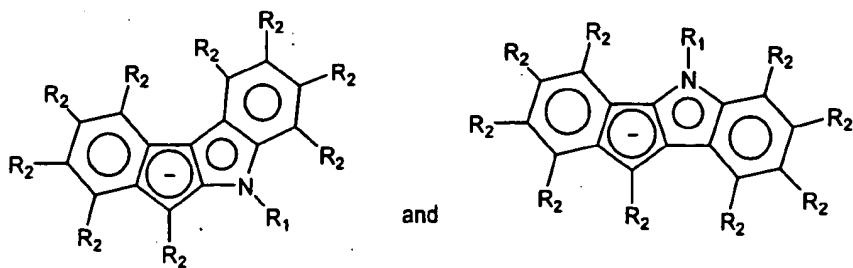


IN THE CLAIMS:

1. (currently amended): A process which comprises polymerizing an olefin in the presence of an activator and an organometallic complex, wherein the organometallic complex comprises a Group 3 to 10 transition metal, M, and at least one non-bridged indenoindolyl ligand that is bonded to M wherein the indenoindolyl ligand has a structure selected from the group consisting of:



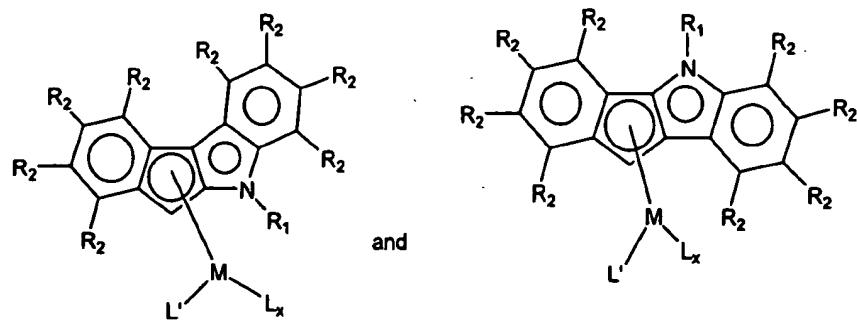
in which R₁ is a C₂-C₃₀ radical containing an atom selected from the group consisting of S, O, P, and N; and each R₂ is independently selected from the group consisting of C₁-C₃₀ hydrocarbyl, H, F, Cl, and Br substituent on the indole nitrogen of the indenoindolyl ligand contains an atom selected from the group consisting of S, O, P, and N.

2. (original): The process of claim 1 wherein the Group 3 to 10 transition metal is a Group 4 transition metal.

3. (original): The process of claim 1 wherein the activator is selected from the group consisting of alumoxanes, alkylaluminum compounds, organoboranes, ionic borates, ionic aluminates, aluminoboronates, and mixtures thereof.

4. (currently amended): The process of claim 1 wherein the organometallic complex is combined with a support material and some or all of the activator is premixed with the organometallic complex prior to addition to the support material.

5. (original): The process of claim 1 wherein the olefin is selected from the group consisting of ethylene, propylene, 1-butene, 1-pentene, 1-hexene, 1-octene, and mixtures thereof.
6. (original): The process of claim 5 wherein the olefin is ethylene in combination with a second olefin selected from the group consisting of 1-butene, 1-hexene, and 1-octene.
7. (currently amended): The process of claim 1 wherein R₁ the substituent on the indole nitrogen contains an ether group.
8. (currently amended): The process of claim 1 wherein R₁ the substituent on the indole nitrogen contains a tertiary amine group.
9. (currently amended): The process of claim 1 wherein R₁ the substituent on the indole nitrogen contains an aromatic ring substituted with an ether group.
10. (original): The process of claim 1 wherein the complex is supported on silica.
11. (original): The process of claim 1 wherein the polymerization is performed at a temperature within the range of about 30°C to about 100°C.
12. (original): A slurry polymerization process of claim 1.
13. (original): A gas-phase polymerization process of claim 1.
14. (canceled).
15. (original): The process of claim 1 wherein the organometallic complex has a structure selected from the group consisting of:



wherein M is a Group 3 to 10 transition metal; each L is independently selected from the group consisting of halide, alkoxy, aryloxy, siloxy, alkylamino, and C₁-C₃₀ hydrocarbyl; L' is selected from the group consisting of alkylamido, substituted or unsubstituted cyclopentadienyl, fluorenyl, indenyl, boraaryl, pyrrolyl, azaborolinyl and indenoindolyl; x satisfies the valence of M; R₁ is a C₂-C₃₀ radical containing an atom selected from the group consisting of S, O, P, and N; and each R₂ is independently selected from the group consisting of C₁-C₃₀ hydrocarbyl, H, F, Cl, and Br.

16. (original): The process of claim 15 wherein L' is selected from the group consisting of substituted or unsubstituted cyclopentadienyl, fluorenyl, indenyl, and indenoindolyl.
17. (original): The process of claim 15 wherein R₁ contains an aromatic ring substituted with an ether group.